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CASE, OF THE MAKE-UP-CASE TYPE, WITH AN ARTICULATED LID

The present invention relates to a case, particularly of the make-up-case type, capable of being closed by an articulated lid. A case of this type  
5 generally comprises two parts, a base and a lid, which are articulated on one another by at least one hinge. Generally, a case of this type is intended for containing one or more slakable products of pasty, liquid or powdery consistency, such as an eye shadow, a rouge, a blusher or a foundation. Usually, these products are marketed in a wide range of  
10 shades.

In order to be able to choose make-up of the desired shade, the consumer is frequently obliged to take the case from its packaging and then to open it in order to check the colour of the product.

15 In order to view, at points of sale, the colour of a make-up product, document US-A-5 568 820 proposes a make-up case, the structure of which makes it possible to pivot the lid through 360° relative to the base so as to place the lid below the base of the case. In this position, the case  
20 can be packaged in a transparent blister-type or heat-shrinkable film package. In this way, the case may be displayed on make-up product shelves, occupying minimum space.

According to that document, the link between the base and the lid is  
25 provided by a multi-hinge structure. In fact the base of the case according to document US-A-5 568 820 is articulated with an intermediate element by means of an attached pin hinge, the actual lid being articulated with this intermediate element by a film hinge. Upon first closure of the case by the user, the intermediate element is immobilized relative to the lid such that  
30 the film hinge does not operate upon opening/closure operations carried out throughout the remaining period of use of the case.

The structure of the case according to document US-A-5 568 820 presents a certain number of drawbacks. The first of these drawbacks relates to the fact that, as the lid is intended to be locked on the intermediate element, the movement of the lid from its maximum opening position under the  
5 base of the case to its locked position on the intermediate element requires a large angle of rotation (of at least 270°) between the lid and the intermediate element.

When the lid is connected to the intermediate element by a film hinge (as  
10 suggested by document US-A-5 568 820) a pivot movement through just as large an angle gives rise to an elongation of the material (typically, polypropylene) at the location of the hinge, which elongation is reflected in a whitening of the material which is prejudicial to the case's appearance. This problem of appearance is all the more critical when the hinge formed  
15 between the lid and the intermediate element, owing to its position on the lid, is highly visible to the user.

Moreover, in a case according to document US-A-5 568 820, in the use position, the intermediate element is immobilized by a pair of arrowhead  
20 tabs with which each lateral end of the intermediate element is provided. Catching of the arrowheads takes place in a direction perpendicular to the direction of the articulation axis of the lid on the intermediate element. In other words, the width of an arrowhead must depend on the height of the intermediate element and thus somewhat on the thickness of the case. In  
25 point of fact, it is desirable for make-up cases which are designed to be carried in a handbag to have a compact size and, particularly to be thin. Generally, transportable cases have a substantially flat structure with a rectangular or oval profile. The thickness of a case of this type may, for example, be of the order of 5 mm to 10 mm. From this perspective, the  
30 case according to document US-A-5 568 820 presents the drawback that the arrowheads, oriented perpendicularly to the articulation axis over a thickness of 5 mm to 10 mm, are not very robust and risk breaking during

the repeated handling operations that the case has to undergo in the course of its use.

Document US-A-4 840 288 describes a case including a base delimiting a housing and a lid connected together by means of an intermediate element, the lid being able to pivot through 360° relative to the base. The base of the case is articulated on the intermediate element by an attached pin hinge placed half way up one of the lateral walls of the base. The lid is also articulated on this intermediate element by an attached pin hinge. In the use position, the intermediate element may be fixed to the base by means of a hook placed substantially in the centre of the intermediate element and which fixes to the upper edge of the lateral wall of the base. The intermediate element thus extends on either side of the plane formed by the opening of the housing of the base, thus partially placing the lid in a plane above the plane formed by the opening of the housing of the base. A device of this type is relatively bulky in this position. Moreover, as the intermediate element extends beyond the plane formed by the opening of the housing at the base in the use position, it may easily be knocked by the user, thereby unlocking it.

It is therefore one of the objects of the present invention to produce a case of the type described above, solving the abovementioned problems totally or partially, with reference to the case discussed previously.

It is, in particular, an object of the invention to produce a case allowing the use of a film hinge to connect its component parts, while offering a satisfactory appearance.

It is yet a further object of the invention to produce a make-up case articulated by means of an articulation system, allowing the presentation of the product it contains, in a position in which the lid is in a 360° open position relative to the base. Moreover, the invention relates to a make-up

case which is economical to produce and simple to use.

Yet further objects will become apparent in the detailed description which follows.

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According to the invention, these objects are achieved by producing a case for packaging a product, particularly a cosmetic product, including a base delimiting at least one housing containing the product, and a lid articulated on the base via an intermediate element capable, in a first configuration of the case, of pivoting both relative to the lid and relative to the base, so as to allow the lid to pivot through 360° relative to the base, the intermediate element including catch means capable, in a second configuration of the case, called the "use" configuration, of engaging with complementary catch means of the base so as to allow the locking of the intermediate element on the base, the housing including an opening extending substantially in a plane, the intermediate element being, in the use position, arranged substantially entirely on the same side of the plane. Advantageously, the intermediate element is, in the use position, arranged substantially entirely on the plane side facing the base.

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Thus, as the intermediate element is intended for securing to the base, the maximum angle of rotation between the lid and the intermediate element is reduced relative to what it is in the configuration of the case described in document US-A-5 568 820. Typically, this angle is of the order of 180°.

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Thus, when a film hinge is used between the intermediate element and the lid, the problems of elongation of the material, of whitening and of appearance mentioned above with reference to document US-A-5 568 820 do not arise to such a degree. Moreover, in the use position, the intermediate element does not extend beyond the plane formed by the opening of the housing, such that no protuberance promoting its unlocking is formed. Finally, a device which is relatively compact in this position is obtained.

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Advantageously, the complementary catch means are formed by a lateral wall of the base which is delimited by a first edge adjacent to the lid in the closed position of the case and a second edge opposite the first one, the  
5 complementary catch means being arranged at a distance from the first edge. Thus, the catch means are not fixed on the upper edge of the lateral wall of the base as is the case for the case described in document US-A-4 840 288. The catch means can thus not be easily unlocked unintentionally by the user.

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More advantageously, the complementary catch means are formed by a lateral wall of the base which is delimited by a first edge adjacent to the lid in the closed position of the case and a second edge opposite the first one, a first articulation axis being arranged substantially at the location of  
15 the second edge.

According to an advantageous aspect of the invention, the catch means of the intermediate element are capable of interacting by snap-fitting with the complementary catch means of the base, the catch means including a  
20 member capable, upon its engagement with the complementary catch means of the base, of flexing elastically in a direction perpendicular to a longitudinal axis of the intermediate element.

Advantageously, the intermediate element has two longitudinal edges.  
25 These two edges are, in particular, parallel to one another, a first articulation axis being located in the vicinity of a first edge of the intermediate element. A second axis is located in the vicinity of a second edge of the intermediate element, opposite the first edge. Thus, the articulation about the first axis connects the intermediate element to the  
30 base while the articulation about the second axis connects the intermediate element to the lid.

Advantageously in the use position, the catch means are arranged so that the engagement of the base on the intermediate element is irreversible. Under these conditions, upon first use, the intermediate element is immobilized relative to the base and the first axis becomes non-  
5 operational. Only the pivoting of the lid on the intermediate piece, about the second axis, is possible, and only over a limited angular portion relative to the angle of maximum opening.

The arrangement described above makes it possible to obtain solid  
10 catching of the intermediate element on the base, even if the case is thin.

By reason of the lid's ability to pivot through 360° relative to the base, the case may be presented in an open position, such that its contents can be seen immediately by the user. Thus, in this maximum open position, the  
15 case may be packaged in a transparent blister pack and displayed at points of sale. This blister-pack packaging method also has the advantage of allowing the surface area of the case to be minimized.

According to a particular embodiment, the case may be formed entirely by  
20 moulding, in a single piece, each of the axes being formed of a film hinge.

As a variant, only one of the axes may be produced in the form of a film hinge, the other in the form of an attached pin hinge. According to this embodiment, the case consists of two distinct pieces: a base (with the  
25 intermediate element) and a lid. The axis connecting the base to the intermediate element is formed by an attached pin hinge. Therefore, the base (with the intermediate element) and the lid may be produced from two different materials. Preferably, the base and the intermediate element are moulded fully from an economically advantageous material suited to  
30 the production of the film hinge, such as polypropylene or another appropriate polyolefin. As regards the lid, which is the most visible part of the case, this may be produced from a material other than polypropylene

which makes it possible, in particular, to produce a special decoration or lacquering. By way of non-limiting examples of materials which may constitute the lid, mention will be made of acrylobutadiene styrene (ABS), urea formaldehyde, polyacrylates, polystyrene, polyoxymethylene (POM),  
 5 acrylic glass or polystyrene acrylonitrile (SAN).

The case referred to by the invention is preferably produced in a substantially flat form. It defines a receptacle delimiting at least one compartment capable of containing a product, particularly a slakable  
 10 product, such as a make-up product. Advantageously, the receptacle is shaped so as to contain, in addition, a product applicator member. Moreover, the lid may have a mirror on its inner face, enabling the user to look at herself when making up her face.

15 If appropriate, the case includes means capable of allowing reversible locking in the closed position of the lid on the base.

Aside from the arrangements set out above, the invention consists of a certain number of other arrangements which will be explained below by  
 20 way of non-limiting illustrative embodiments which are described with reference to the appended Figures, amongst which:

- Figure 1 shows a perspective view of a case of the make-up type according to the invention;
- Figure 2 shows a transverse sectional view of the case of  
 25 Figure 1;
- Figure 3 illustrates a transverse sectional view of the case of Figure 1 in the position in which it is open through 360°;
- Figure 4 shows a transverse sectional view of the case of Figure 1 during assembly;
- 30 - Figure 5 shows a transverse sectional view of the case of Figure 1 in the closed position;
- Figure 6 shows, in transverse section, the case of Figure 1 in the

"use" position, open through 180°; and

- Figures 7a and 7b each show a partial perspective view of a case according to a variant embodiment of the invention.

5 With reference to Figures 1 to 6, a make-up case according to the invention is denoted by the reference 1. It has a substantially flat shape, as is used, in particular, for packing make-up products, such as foundations, eye shadows, blushers or other products of the same type. It may be thin, for example of the order of 8 mm or 10 mm.

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As may be seen in these Figures, the case 1 is formed principally from a base 2 and a lid 4 mounted so as to pivot on the base. The case is moulded as a single piece from a suitable thermoplastic material, for example from polypropylene. The base 2 forms one or more  
15 compartments in the form of at least one receptacle 2a for a slakable product P, particularly a make-up product. If appropriate, one of the compartments maybe used to receive an applicator for picking up the product P and applying it to the desired location (not shown).

20 The lid 4 has a reinforcement 9 extending over a substantial portion of its surface, for receiving a mirror 4a. A clasp 4b carried by the lid 4 is capable of engaging with a corresponding member 2b carried by the base 2, for providing reversible locking of the lid 4 on the base 2. In the vicinity of this locking member 2b, the base 2 forms a recess 3 shaped to facilitate the  
25 opening of the case 1.

The lid 4 is connected to the base 2 by means of an intermediate element 20, of elongate form, having two longitudinal edges 21, 22. The intermediate element is delimited laterally by two flanks 20a, 20b. As may  
30 be seen, in particular in Figure 1, the intermediate element 20 is connected to the base by a first film hinge 23, forming a first articulation axis A<sub>1</sub>. This film hinge is located on the edge 21 of the intermediate



element 20. A second film hinge 24 is formed on the edge 22, forming a second articulation axis  $A_2$ . This second film hinge 24 connects the intermediate element 2 to the lid 4. Thus, the articulation of the lid, via the intermediate element, on the base is provided by a parallel-axis dual-  
 5 articulation structure.

A lateral wall 5 of the base 2, attached to the film hinge 23, includes an elongate opening B. This opening B extends in a rectilinear fashion in a direction parallel to the axes  $A_1$  and  $A_2$  over a substantial portion of the  
 10 width of the wall 5. The intermediate element 20, on its face for coming into contact with the lateral wall 5 of the base, includes locking means C. These locking means C are capable of irreversibly engaging in the opening B.

15 The locking means C are produced in the form of a longitudinal tongue 30. This tongue 30 is oriented parallel to the pivot axes  $A_1$  and  $A_2$  and extends over a median zone of the intermediate element 20, over a width substantially equal to the width of the opening B. The opening B is positioned appropriately to allow insertion of the tongue 30. The tongue 30  
 20 has a sloping surface 32, one edge of which has a hook-shaped profile 31. Catching of the tongue 30 is ensured by this hook-shaped profile 31 engaging inside an inner edge of the opening B. To this end, the tongue 30 is slightly flexible in a direction substantially parallel to the plane of the intermediate element 30 (perpendicularly towards the outside relative to  
 25 the axis  $A_1$ ).

The arrangement of the case in the position of maximum opening, illustrated in Figure 3, makes it possible to position the lid under the base such that the upper face 41 of the lid 4 comes opposite the lower face 25  
 30 of the base 2. In this position, the case 1 is in the presentation position, open over an angle of  $360^\circ$  relative to the closed position of the case.

In the presentation position illustrated in Figure 3, the case, open through 360°, may be displayed at points of sale so as to make the product packaged in the compartment 2a visible. This position also makes it possible to package the case in a transparent blister pack. This has the advantage that the product is protected but the consumer is able to choose the desired product shade without having to open the case. The case thus packaged takes up a minimum amount of space.

When the case is packaged in a blister pack, after the case is unpacked it is therefore in the position of maximum opening through 360° (Figure 3). In order to be able to use the case, the user pivots the lid 4 relative to the base 2. During this pivot movement of the lid 4 from the presentation position shown in Figure 3, it passes successively through the positions shown in Figures 1 and 2, then 4, as far as the closure position illustrated in Figure 5. During this pivot movement, the intermediate element 20 comes closer to the lateral wall 5 of the base.

The tongue 30 then comes opposite the orifice B and the sloping surface 32 bears against the lower edge of the orifice B. Through the effect of a stress produced during the pivot movement of the lid 4, the tongue 30, over its entire width, flexes elastically upwards. It is thus possible to insert the tongue 30 entirely in the opening B. When the hook-shaped profile 31 has crossed the inner edge 107 of the opening B (Figure 7a), the tongue returns, through elasticity, into its initial position. The hook 31 is accommodated behind the lateral wall 5 of the base and gives rise to irreversible locking of the intermediate element 20 on the base. In this way, the first axis A<sub>1</sub> becomes completely non-operational.

Figure 5 shows the case in the closed position, allowing the product P to be protected from dust or the case to be carried in a handbag.

In order to open and close the case, with a view to its use for making-up,

the user performs a pivot movement only about the axis  $A_2$ , through an angle of  $180^\circ$  (Figure 6).

Figures 7a and 7b illustrate a variant embodiment, according to which a case 101 consists essentially of two distinct elements 102, 104. Relative to the first embodiment, the parts of the case which are identical or play a similar role bear the same reference numbers of the case 1, increased by 100. Relative to the first embodiment, the case 101 differs in that the base 102 is moulded entirely with the intermediate element 120 from a suitable material. Its configuration and its functioning are similar to those of the case 1 and they will be described only briefly.

The intermediate element 120 is connected to the base 102 by a film hinge 123 defining a first articulation axis  $A_1$ . This film hinge becomes non-operational after the first closure of the case, as described above with respect to the case 1 of the embodiment described above. The second hinge 124 is of the attached pin type and includes an attached pin.

The structure of the case 101 has the advantage that it is possible to choose, for production of the base and the intermediate element, which are somewhat concealed, a first economically advantageous material, for example polypropylene. This material makes it possible to produce the film hinge 123.

The locking means C are identical to those described above with reference to the case 1. The embodiments according to the invention allow solid locking of the means C in the catch orifice B of the base 102. Moreover, these means are invisible to the user during use of the case. Any deformation of the intermediate element 120 or of the lateral wall 105 of the base during a number of uses will scarcely be noted.

As regards the lid, a second plastic material capable of receiving a special

decoration or a lacquering is advantageously chosen. This is important since the lid is the most visible and value-enhancing part of a make-up case. The second material is chosen, for example, from urea formaldehyde, acrylobutadiene styrene (ABS) or polystyrene acrylonitrile  
5 (SAN), polyoxymethylene (POM), acrylic glass, styrene, etc.

In the preceding detailed description, reference was made to preferred embodiments of the invention. Obviously, modifications may be made thereto without departing from the spirit of the invention as claimed below.